

3.0 PREVIOUS SITE INVESTIGATIONS

3.1 Preliminary Assessment

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the U.S. Department of the Interior, a final draft of a Preliminary Assessment (PA), authorized by the Bureau of Land Management of the Morning Star Mine was published in 1996. The purpose of the PA was to collect information concerning conditions at the mine site sufficient to assess the threat posed to human health and the environment and to determine the need for additional action. The scope of the PA included review of available file information, a comprehensive target survey, and an onsite reconnaissance. The purpose of the initial PA was to outline a sample collection strategy at the site. Subsequently, the BLM authorized a non-sampling PA report and PA-score which allowed the BLM, EPA Region IX, the National Park Service, the Regional Water Quality Control Board (RWQCB), and the San Bernadino County Department of Environmental Health to review and comment on the PA. Agency input identified specific regulatory directives for an Expanded PA or Site Inspection sample collection and analysis plan.

The PA Report describes the site features, the site operational history and regulatory activities, a pathway/environmental hazard assessment, and associated conclusions in accordance with CERCLA guidelines. Various potential sources of contamination to groundwater were identified. These included the presence of heavy metals and cyanide in the pregnant solution pond and the two heap leach pads. Petroleum contamination was suspected due to poor operational housekeeping methods and the potential for inadequate remediation of leaking UST's; however, it is not known at this time whether a systematic investigation for hydrocarbon contamination was conducted. Little documentation exists regarding the potential fate and transport via the ground water pathway of the hazardous materials identified and/or suspected. One onsite water production well was reported to have water present at 210 feet below ground surface (bgs) during the PA. No water quality data or additional water quantity data was available. Subsequent water level monitoring indicates that both water supply wells have some volume of water in them (E & E, 1999, and HLA, 2000)

The PA concluded that a release to ground water was suspected due to the large waste source represented by the heap leach pads and pregnant solution pond. The potential for contamination

to surface water from overland runoff from the heap leach pads and pregnant solution pond was also documented. Again, no data was available to confirm the presence and extent of the potential contamination to surface water. The risk to human health was primarily in the form of airborne particles with heavy metal and cyanide-contamination from unreclaimed surfaces. In addition, the site is within the identified range of the desert tortoise and within the administrative authority of the National Park Service. The PA findings indicated that further site investigation was warranted to develop a comprehensive analytical database, specifically, a Site Investigation (SI) in accordance with CERCLA guidelines was recommended (CCJM, 1996).

3.2 Limited Site Inspection, Sampling and Analysis

Additional sampling events were authorized by the NPS in 1998 and 1999 to characterize the level of water in the water supply and monitoring wells, and to further define the potential extent of cyanide and heavy metal contamination at the mine site (Appendix: E&E Report). Samples were collected from the open pit, heap leach pads, water supply wells and pregnant solution pond. Soil and water sample analyses were compared to benchmark levels for mammalian and avian drinking water quality levels. The report concluded that, while below levels identified as acute for mammals and birds, the leachate samples exceeded the California MCL's and LRWQCB discharge limits (E & E, 1999).

3.3 Additional Sampling

From 2000-2002 the NPS continued efforts to characterize soil and water quality at the mine site. Surface water and soil samples (Tables 3.1 and 3.2) were analyzed for the presence of Total and Weak Acid Dissociable Cyanide (WADCN) and heavy metals. Water levels were recorded for the two water supply wells and five monitoring wells (Table 3.3). Sample site and well locations are presented in Figure 3. Sampling results are discussed in section 4.3.3. Additional sampling to fill data gaps was conducted and is discussed in Section 5.0.